

23. (Twice Amended) A thin film transistor comprising:

[a] an intrinsic channel semiconductor layer:

a gate insulating layer contacting said channel layer; and

a gate electrode adjacent to said channel layer with said gate insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen, nitrogen or carbon at a concentration 5×10^{19} atoms/cm³ or less and said semiconductor layer shows a Raman [peak] shift at a wavenumber of 512 cm⁻¹ or higher.

25. (Twice Amended) A thin film transistor comprising:

[a] an intrinsic channel semiconductor layer:

a gate insulating layer contacting said channel layer; and

a gate electrode adjacent to said channel layer with said gate insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen, nitrogen or carbon at a concentration 5×10^{19} atoms/cm³ or less and a ratio of a full band width at half maximum (FWHM) of a Raman peak of said channel semiconductor layer to a FWHM of a Raman peak of a single crystalline silicon is less than 3.

27. (Twice Amended) A thin film transistor comprising:

[a] an intrinsic channel semiconductor layer:

a gate insulating layer contacting said channel layer; and

a gate electrode adjacent to said channel layer with said gate

insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen, nitrogen or carbon at a concentration 5×10^{19} atoms/cm³ or less and a peak intensity ratio I_a/I_c of said channel semiconductor layer is less than 0.4 [where I_a represents a Raman peak intensity at a wavenumber of 480cm⁻¹ for an amorphous component of said channel semiconductor layer and I_c represents a Raman peak intensity at 521 [cm⁻¹] cm⁻¹ for a single crystalline silicon.

32. (Amended) A thin film transistor [comprising an activation layer] produced by a process comprising the steps of:
forming on a surface an intrinsic or substantially intrinsic silicon semiconductor film containing therein carbon, nitrogen or oxygen at a concentration of 5×10^{19} [atoms/cm³] atoms/cm³ or less; and
irradiating said entire semiconductor film with a laser beam or a light having a strength equivalent to the laser beam with melting the semiconductor to increase the degree of crystallinity thereof.

33. (Amended) A thin film transistor comprising:
[a] an intrinsic channel semiconductor layer;
a gate insulating layer contacting said channel layer; and
a gate electrode adjacent to said channel layer with said gate insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single crystalline silicon semiconductor layer containing oxygen at a concentration 1×10^{19} atoms/cm³ or less and said semiconductor layer shows a Raman shift

at a wavenumber of 512 cm^{-1} or higher.

34. (Amended) A thin film transistor comprising:

[a] an intrinsic channel semiconductor layer;
a gate insulating layer contacting said channel layer; and
a gate electrode adjacent to said channel layer with said gate
insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single
crystalline silicon semiconductor layer containing oxygen at a concentration
 1×10^{19} atoms/cm³ or less and a ratio of a full band width at half maximum
(FWHM) of a Raman peak of said channel semiconductor layer to a FWHM
of a Raman peak of a single crystalline silicon is less than 3.

35. (Amended) A thin film transistor comprising:

[a] an intrinsic channel semiconductor layer;
a gate insulating layer contacting said channel layer; and
a gate electrode adjacent to said channel layer with said gate
insulating layer therebetween,

wherein said channel semiconductor layer comprises a non-single
crystalline silicon semiconductor layer containing oxygen at a concentration
 1×10^{19} atoms/cm³ or less and a peak intensity ratio I_a/I_c of said channel
semiconductor layer is less than 0.4 where I_a represents a Raman peak
intensity at a wavenumber of 480 cm^{-1} for an amorphous component of said
channel semiconductor layer and I_c represents a Raman peak intensity at 521 cm^{-1}
for a single crystalline silicon.